

AUDIO

FAQ

Q What is a PCM audio file format?

A Pulse-code modulation (PCM) is the uncompressed audio format used to capture a sound wave digitally. The most common PCM file formats are Wav and Apple's AIFF.

The quality of a PCM audio recording is determined by its sample rate and bit depth. The sample rate is the number of samples of the original continuous wave form taken per second, and is measured in hertz (Hz). For example, CD audio uses a sample rate of 44,100Hz, which means up to 44,100 samples are taken for each second of audio.

The bit depth determines how much data is used to represent each sample. The higher the bit depth, the more accurate the sample will be. CD audio uses a 16-bit depth.

Higher sample rates and bit depths provide better audio quality, but higher-quality files take up more disk space and tend to be used only for audio production and editing. However, differences are hard to distinguish once you go above 24-bit and 44,100Hz.

Kat Orphanides

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OLYMPUS LS-10

★★★★★

£258 inc VAT
From www.dv247.com

The Olympus LS-10 portable audio recorder can capture production-quality stereo sound through twin microphones that protrude like antennae from the top of the recorder. It supports more file types than most recorders, including Wav PCM, MP3 and WMA formats.

A 3.5mm stereo mini-jack is provided for monitoring the sound through headphones, as well as line-in and microphone ports for connecting external audio sources. A USB interface makes transferring files to and from the recorder simple, and the LS-10 even has built-in stereo speakers.

It's sturdy, comfortable to hold, fits easily in a pocket and there's a standard tripod thread on the bottom. The LS-10 requires two AA batteries and weighs 165g with them fitted. Battery life with two alkalines lagged behind MP3 players at nine hours and 31 minutes. Although the manual warns that recording until the battery runs out may result in file loss, this didn't occur in our tests.

Menus look basic on the mono LCD screen, but it's designed to conserve battery power. A folder list makes it easy to save recordings in different preset directories, and a settings menu provides fine control over microphone configuration and file formats. The highest quality setting records 96kHz (96,000Hz), 24-bit Wav PCM files.



The sensitive microphones deliver excellent sound quality. Background noises were clearly audible at default settings, which is undesirable in spoken word recordings. The zoom mic options eliminate most of the ambient noise, but these are unavailable in high-quality PCM modes.

The recorder's 2GB of internal storage is enough for only 59 minutes of audio recorded at the highest quality, but lower-quality settings and compressed formats allow you to cram much longer recordings into the same space. You can add SD and SDHC cards to extend recording times.

The recorder comes with Steinberg's Cubase LE 4 audio-editing and sequencing software, which is overkill for simple editing. However, it has everything you're likely to need if you're serious about audio production.

The LS-10 isn't cheap, but its audio quality is excellent. It's ideal for recording podcasts, interviews and meetings, while its sensitivity and quality are useful for recording musical rehearsals. If you just want to record the occasional memo, though, you're better off using the voice recorder function of an MP3 player such as Sandisk's Sansa e280 (see 'Also consider...') or a cheaper digital voice recorder. If you want production-quality audio recording on the move, the LS-10 is perfect.

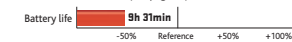
Kat Orphanides

SUMMARY

- ✓ Records in a wide range of formats
- ✓ Excellent recording quality
- ✗ Expensive; basic display

DIGITAL AUDIO RECORDER 2GB internal RAM, supports Wav, MP3, WMA formats, SD/SDHC card slot, USB Hi-Speed interface
PART CODE LS-10
DETAILS www.olympus.co.uk

PERFORMANCE (see page 66)



Also consider...

SANDISK Sansa e280

★★★★★

£65 inc VAT
From www.kikatek.com



This 8GB MP3 player is great value. It has an impressive battery life of 18 hours and 17 minutes. Its control wheel and menu system are easy to use and the 1.8in colour screen is free from graininess. Audio quality was consistently good, and we were impressed by the speed and stability of its video-conversion software. It can be expanded via microSD cards.

MP3 PLAYER 8GB capacity, supports MP3, WMA, WMA-DRM, JPEG and BMP images, MOV video (with limitations), USB Hi-Speed interface
PART CODE SDMX4-8192-A70
DETAILS www.sandisk.com
FULL REVIEW Nov 2007

SHURE SE210

★★★★★

£65 inc VAT
From www.play.com



Shure's SE210 sound-isolating earphones block out almost all external noise, thanks to foam sleeves that expand to fill the ear canal. This makes music sound clear and powerful even at low volumes. They produce a rich, precise sound and an excellent listening experience. Wearing the foam sleeves feels strange at first, and the cables and connectors are heavier than those of most earphones, but you soon get used to it.

EARPHONES 3.5mm stereo jack plug, 45cm cable, 10g, sensitivity 114dB, frequency response 22-19,000Hz, impedance 26 ohms
DETAILS www.shure.co.uk
FULL REVIEW Mar 2008

AUZENTECH Auzen X-Fi Prelude 7.1

★★★★★

£112 inc VAT
From www.kikatek.com



This sound card is perfect for home entertainment. It can output analogue stereo, 5.1 and 7.1 surround sound, and has both optical and coaxial S/PDIF in and out. In games it produces great 3D sound through standard headphones. Recording quality was clean and accurate, although with only line and mic inputs, it's not ideal for audio production.

SOUND CARD Creative X-Fi processor, mic in, line in, front out, rear out, centre/subwoofer out, rear surround out, S/PDIF in, S/PDIF out, 64MB RAM.
DETAILS www.auzentech.com
FULL REVIEW Apr 2008

M-AUDIO Fast Track Pro

★★★★★

£130 inc VAT
From www.dv247.com

M-Audio's Fast Track Pro is an external USB audio and MIDI interface designed for home audio production. With its huge range of ports, you can use it to connect almost any audio kit to your PC.

Two multipurpose ports on the front can take 1/4in jacks or XLR microphone connectors, and it has MIDI in and out ports on the back. Other connections include coaxial S/PDIF in and out, two sets of stereo phono outputs, 1/4in outputs and effects pedal inserts.

Installation went smoothly, thanks to clear instructions in the quick start guide. If you've got an

onboard Realtek sound device, you'll have to download the latest driver, as older versions cause conflicts. We weren't impressed with the bundled software, which includes Ableton Live Lite 6.01 – a hobbled version of the excellent Ableton Live – and a demo version of Digidesign Pro Tools M-Powered 7.3.

Audio output was clear and precise: excellent for monitoring and mixing live audio and MIDI output, or just listening to MP3s. Input quality allows recording at a maximum of 24-bit and 96kHz, which is plenty for most audio production. It doesn't output as much volume as some interfaces, and setting the correct levels for microphone input took some tweaking, but we were pleased with the results.

Excellent sound quality and a huge range of audio ports make this an easy and effective way to equip a PC for audio production.

Kat Orphanides



SUMMARY

- ✓ Excellent audio quality
- ✓ Wide range of ports
- ✗ Disappointing software

USB AUDIO/MIDI INTERFACE MIDI in, MIDI out, coaxial S/PDIF, 1/4in headphone, 2x 1/4in output, 2x stereo phono outputs, coaxial S/PDIF, 2x 1/4in or XLS inputs, 2x 1/4in inserts, USB 1.1 interface

PART CODE Fast Track Pro
DETAILS www.m-audio.com

GEAR4 BassStation

★★

£100 inc VAT
From www.gear4store.com

Gear4's BassStation iPod dock fits a set of 2.1 speakers into a bread bin-sized box. The subwoofer gives the BassStation a more powerful sound than most iPod docks. Treble and midrange tones were also clearly defined.

It has built-in handles for moving the dock around, although as it's mains-powered, it's not an inherently portable device. A genuinely useful feature is the stereo phono input, which allows you to connect other audio sources besides iPods.

The BassStation's remote control is a variant on the standard iPod design, with the addition of bass

and treble buttons for controlling satellite and subwoofer volumes. Gear4 claims the BassStation is compatible with all fourth-generation iPods and above, bar the Shuffle. It's supposed to have full support for the iPod Touch, but we were unable to control it with the remote and had to skip tracks and navigate menus using the Touch's own controls.

The BassStation's light plastic housing buzzed when we played bass-heavy music at louder volumes, a problem we haven't encountered with wooden speaker cabinets. Fortunately, the speakers sound good at normal listening volumes.

At £100, the BassStation is overpriced compared with better 2.1 speaker sets, such as Logitech's X-230 (see page 139), and issues such as vibration and poor Touch compatibility are disappointing. If you want speakers with an iPod dock, iRhythms' A-211 (see 'Also consider...' below) is a better choice.

Kat Orphanides



SUMMARY

- ✓ Good audio quality
- ✗ Expensive
- ✗ Vibrations; Touch incompatibility

IPOD DOCK SPEAKERS 2.1, 35W power, stereo phono inputs, iPod dock
PART CODE PG171
DETAILS www.gear4.com

APPLE iPod Nano

★★★★★

£129 inc VAT
From www.apple.com/uk

COMPUTER
SHOPPER
BEST BUY

The latest version of Apple's iPod Nano combines great audio quality with a sharp 2in screen to create an outstanding multimedia player that's small enough to fit in the ticket pocket of a pair of jeans. It lasted over 30 hours in our audio battery test, and over five during video playback. The standard headphones are mediocre, but with our reference set the Nano had clear, rich sound at every setting.



MP3 PLAYER 8GB capacity, supports MP3, Wav, AAC, Protected AAC, Audible, Apple Lossless and AIFF audio, JPEG images, H.264 and MPEG4 video (with limitations), USB Hi-Speed interface PART CODE MB257ZO/A
DETAILS www.apple.com/uk FULL REVIEW Dec 2007

IRHYTHMS A-211

★★★★★

£93 inc VAT
From www.datakits.co.uk

COMPUTER
SHOPPER
BEST BUY

iPod-docking speakers are a great way to enjoy your digital music collection without having to switch on your computer. However, the compact designs that most manufacturers favour are often less than ideal for providing good sound quality, and the fee Apple charges for its Made for iPod certification means that most iPod-compatible speakers are poor value compared with standard PC speakers.

iRhythms' A-211 set bucks this trend. The conventional subwoofer-based design provides much deeper bass and louder overall volumes than all-in-one designs, and it produces very high-quality sound, making it well suited for use both with iPods and computers.

IPOD DOCK SPEAKERS 2.1 configuration, 133W RMS power, compatible with all docking iPods and first-generation Shuffle, auxiliary line input
PART CODE LN16326 DETAILS www.irhythms.com
FULL REVIEW Oct 2007



PHILIPS SHE2550 Extra Bass

★★★★★

£5.10 inc VAT
From www.lambda-tek.com/componentshop

COMPUTER
SHOPPER
BUDGET BUY

Philips' SHE2550 Extra Bass earphones are among the cheapest products we've ever recommended, but this set of earbuds is far superior to the standard earphones that come with most MP3 players. They are comfortable to wear and their open speakers create a full, natural sound that's particularly well suited to rock, pop and dance music. As the name promises, they produce loud, solid bass tones, but this doesn't detract from the clarity and precision of the sound.



EARPHONES 3.5mm stereo jack plug, 1.1m cable, 87g, sensitivity 106dB, frequency response 12-22,000Hz, impedance 16 ohms
PART CODE SHE2550/00 DETAILS www.philips.co.uk
FULL REVIEW Mar 2008